

Illinois Commerce Commission

Sustainable Energy Plan Initiative Working Group

April 6, 2005

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Energy Resources Center (ERC) University of Illinois at Chicago

² □ Energy Resources Center

- Established in 1973 as part of the University of Illinois at Chicago (UIC)
- Conducts Interdisciplinary Technology, Research, and Education Initiatives to Improve Energy Efficiency in Illinois
- Non-traditional, non-teaching university unit

3 ERC Strategic Areas

- Engineering Solutions
 Industrial energy efficiency / productivity
 Commercial building design / operations
 Residential weatherization
- Building Sciences (Indoor Air Quality)
- Distributed Energy Resources
- Midwest Combined Heat and Power Application Center
- Energy Supply Management
- State of Illinois Natural Gas Procurement Program
- Policy and Assessments
 DCEO Draft Report: "Energy, Economic and Environmental Impacts of Renewable and Energy Efficiency Deployment in Illinois"

4 □ US Electricity Consumption

by Market Sector

- Industrial Users consume 26% of Electricity in Illinois
- 5 Electricity Consumption Forecasts
- 6 □ Industry in Illinois

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- Industry Sector Specific
 - Chemicals: Process heating and heat recovery
 - Pulp & Paper: Drying techniques
 - Metal Casting: Computer design of parts
- Cross-Cutting Technologies
 - Motor systems
 - Steam systems
 - Combined heat and power
- 8 | Industrial Electricity Consumption by End Use

9 Industrial Energy Conservation

- Benefits of improved energy efficiency
 - Lower production costs
 - Reduced waste
 - Improved productivity
 - Improved competitiveness / job retention

- Environmental quality

10 Industrial Programs in Illinois

- Industrial Assessment Centers (IAC)
- City of Chicago Industrial Rebuild Program
- Illinois Department of Commerce and Economic Opportunity (DCEO)
 - Industries of the Future
 - Metal casting
 - Food processing
 - Pulp and paper
 - Plastics
 - Chemicals
 - State Technologies Advancement Collaborative
 - TAA Chemicals Program
 - Manufacturing Energy Efficiency Program (MEEP)

11 US DOE Industrial Assessment Centers

- · US Department of Energy sponsored
- 26 centers at major universities
- UIC IAC established 2000
- Provide energy, waste and productivity assessments to small and medium sized manufacturers
 - No direct cost to manufacturers
 - Comprehensive, confidential and unbiased

12 IAC Geographic Coverage

13 AC Energy Savings by Sector

• Overall Project Implementation Rate: 44%

14 City of Chicago Industrial Rebuild Program

- City of Chicago / ComEd / ERC
- Identified Savings
 - 28 million kWh of electricity
 - 780,000 MMBtu of natural gas
 - Average of 19% reduction in utility costs
- Potential Environmental Impact
 - 105 million lbs of CO2 (site and source emissions)
 - 40 million cubic feet of water
- Implementation Costs
 - \$0.02 /kWh

15 Implementation Costs of Industrial Efficiency Projects

16 Distributed Energy Resources

17 Midwest CHP Application Center

(CHP - Combined Heat and Power)

- Funded by US Department of Energy
- Est. 2001, first of its kind
- Prototype & Model for Additional Centers
- Seven Additional Centers Established By DOE In 2003 / 2004:
 - Established as a Result of MAC Effectiveness
 - Based On The Approach of The MAC
 - Look to the MAC For Guidance and Support

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- 19 Conventional Generation vs. CHP
 20 Traditional CHP Installed Costs
 21 Combined Heat and Power
 in Illinois
- 22 Market Barriers to Industrial Energy Conservation
 - Lack Engineering Expertise
 - Even large companies
 - Uncertain of savings
 - Unknown Energy Input to Process
 - kWh/widget?
 - Unfamiliar with New Technologies
 - Access to Capital
- 23 Successful Industrial Efficiency Programs
 - Education / Awareness
 - DCEO MEEP
 - Midwest CHP Assistance Center
 - Technical Assistance
 - Energy Assessments
 - System Audits / Tools
 - Implementation Incentives
 - City of Chicago CIRP
 - Texas LoneSTAR program
 - Measurement and Verification
 - Couple energy efficiency with energy monitoring and procurement strategies
- 24 For more information

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